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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,015	03/15/2001	Jun Tanaka	Q60826	4598

7590

02/26/2003

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EXAMINER

JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 02/26/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,015

Applicant(s)

TANAKA ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-8 is/are allowed.
- 6) ☐ Claim(s) 1-4 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the brief description of the drawings is titled, "Brief Description of the Invention". Examiner suggests --Brief Description of the Drawings--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1-2 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Iglesia et al. US 4,960,801.

Regarding claims 1 and 10, Iglesia '801 discloses 100% rutile titanium oxide having a BET surface area of less than

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about 50 m²/gm (see column 3, lines 56-62). The claimed formula defines R as a percentage range with an endpoint maximum of 100%, which endpoint is anticipated by the disclosure of Iglesia.

Regarding claim 2, Iglesia '801 discloses a BET surface area of less than about 50 m²/gm (see column 3, lines 56-62).

4. Claims 1-3, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. US 6,001,326.

Regarding claims 1 and 10, Kim '326 discloses pure rutile titanium dioxide (see Example 2) having specific surface area of 150-200 m²/g (see column 8, lines 39-41).

Regarding claim 2, Kim '326 discloses a specific surface area of 150-200 m²/g (see column 8, lines 39-41).

Regarding claim 3, Kim '326 discloses mean particle size of 0.3 microns (see Example 1).

5. Claims 1-3 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Gutsch et al. US 2001/0036437 A1.

Regarding claims 1 and 10, Gutsch '437 discloses examples of titanium dioxide having a BET surface area of 1-600 or 79 m²/g (see abstract, claim 1, Table 1), and up to 100% rutile (see Table 3).

Regarding claim 2, Gutsch '437 discloses a BET surface area of 1-600 or 79 m²/g (see abstract, claim 1, Table 1).

Regarding claim 3, Gutsch '437 discloses TEM size of 0.2-2 microns (see Table 2).

6. Claims 9 and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Iglesia '801.

Regarding claims 9 and 11, Iglesia '801 discloses 100% rutile titanium oxide having a BET surface area of less than about 50 m²/gm (see column 3, lines 56-62). The claimed formula defines R as a percentage range with an endpoint maximum of 100%, which endpoint is anticipated by the disclosure of Iglesia.

7. Claims 9 and 11 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kim '326.

Regarding claims 9 and 11, Kim '326 discloses pure rutile titanium dioxide (see Example 2) having specific surface area of 150-200 m²/g (see column 8, lines 39-41).

8. Claims 9 and 11 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gutsch '437.

Regarding claims 9 and 11, Gutsch '437 discloses examples of titanium dioxide having a BET surface area of 1-600 or 79 m²/g

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(see abstract, claim 1, Table 1), and up to 100% rutile (see Table 3).

9. In the event any differences can be shown for the product of the product-by-process claims 9 and 11, as opposed to the product taught by Iglesia '801, Kim 326, or Gutsch '437, such differences would have been obvious to one of ordinary skill in the art at the time the invention was made as a routine modification of the product in the absence of a showing of unexpected results; see also *In re Thorpe*, 227 USPQ 964 (Fed.Cir. 1985).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iglesia '801.

Regarding claim 4, Iglesia fails to disclose A Rosin-Rammler constant of 1.5 or more.

Satoh discloses a Rosin-Ramler distribution of n of 6.0 or greater (abstract).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the distribution of Satoh with the titanium dioxide of Iglesia because Satoh discloses his distribution to obtain a titanium compound catalyst (abstract) and Iglesia discloses distributions of crystallite sizes for chemisorption (see column 5, lines 49-50 and column 6, lines 1-15).

Allowable Subject Matter

12. Claims 5-8 are allowed.

13. The following is a statement of reasons for the indication of allowable subject matter: It would not have been obvious to one of ordinary skill in the art at the time the invention was made to supply the diluted tetrachloride and oxidizing gas at a flow rate of 20 m/sec or more to react for 3 seconds or less in the process of the instant claim 5.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Allen et al. US 5,201,949 discloses a titanium dioxide manufacturing process comprising oxidation of titanium tetrachloride (see abstract, Examples); Basque et al. US 3,923,968 discloses titanium dioxide

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(abstract, Examples) comprising 100% rutile needle fraction (see column 14, Step 4); and Elfenthal et al. US 5,45,252 discloses titanium dioxide produced by suspension (see abstract, Examples).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

EMJ

February 12, 2003

A handwritten signature in black ink, appearing to read "Stanley S. Silverman", with a long horizontal line extending to the right.